MONTHLY WEATHER REVIEW.

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INTRODUCTION.

This REVIEW shows the general meteorological conditions which prevailed over the United States during the month of March, 1883, as indicated by the reports received from the regular and voluntary observers of the Signal Service, up to April 20th, 1883. A brief description is also given of the storms which occurred in the north Atlantic during the month, as based upon observations taken at 7 a. m., Washington time.

The special features of the month are:—

1st. The continuation of the floods which began in the lower Mississippi valley during February.

2d. The low mean temperature over the districts east of the Missouri and lower Mississippi rivers, averaging from 1°.3 in Florida to 6°.5 in the lower lake region below the mean of the month.

3d. The large deficiency in the rainfall over the country from the upper Mississippi valley to the Atlantic coast, and the excessive rainfalls which occurred in California during the latter part of the month, terminating the serious drought which prevailed in that state.

4th. Chart ii. shows the limits within which icebergs have been observed in the north Atlantic during the month. The southern limit is now on the forty-first parallel of latitude, and the eastern limit is shown near the forty-fifth meridian.

In the preparation of this REVIEW the following data received up to April 20th, have been used; viz.: the regular tri-daily weather-charts, containing data of simultaneous observations taken at one hundred and thirty-six Signal Service stations and fifteen Canadian stations, as telegraphed to this office; one hundred and eighty-eight monthly journals, and one hundred and seventy-eight monthly means from the former, and fifteen monthly means from the latter; two hundred and forty-five monthly registers from voluntary observers; fifty-eight monthly registers from United States Army post surgeons; marine records; international simultaneous observations; marine reports, through the co-operation of the "New York Herald Weather Service;" abstracts of ships' logs, furnished by the publishers of "The New York Maritime Register;" monthly weather-reports from the local weather services of Indiana, Kansas, Nebraska, and Tennessee, and of the Central Pacific railway company; trustworthy newspaper extracts; and special reports.

ATMOSPHERIC PRESSURE.

[*Expressed in inches and hundredths.*]

The distribution of mean atmospheric pressure for the month of March, 1883, determined from the tri-daily telegraphic observations of the Signal Service, is shown by the isobarometric lines in red on chart iii.

The mean pressure of the month is greatest over northern Montana and northwestern Dakota, where it is above 30.2. The isobar of 30.15 incloses a region between the ninety-fifth and one hundred and fifteenth meridians north of parallel forty. From the area of greatest pressure southwestward the monthly means diminish over central California to 30.01 at Visalia and 30.02 at Sacramento, but they increase at the coast stations to 30.05 at San Francisco and San Diego, and 30.08 at Los Angeles. Over the southern sections of the country the mean pressure is above 30.05, except at stations in the southern parts of Arizona, Texas, and Florida. The pressure is least over the Canadian Maritime Provinces, the lowest monthly mean, 29.78, being reported from Charlottetown, Prince Edward Island.

Compared with February, the mean pressure shows a general decrease at all stations varying from 0.02 to 0.32. The deficiencies are greatest in the northern plateau and on the Atlantic coast north of the fortieth parallel; they are least in Arizona, Nevada, and southern California. There is an average decrease of about 0.2 from the lake region and upper Mississippi valley to the south Atlantic and Gulf states.

DEPARTURES FROM THE NORMAL VALUES FOR THE MONTH.

The pressure is below the normal on the Pacific coast, over the northern part of the upper lake region, in New England, Florida, and along the south Atlantic and east Gulf coasts. In these districts the departures vary from 0.01 to 0.08, and are greatest on the Pacific coast. In the other districts the mean pressure is from normal to 0.14 above, the greatest departures occurring at stations in the extreme northwest and in the northern slope. From the middle Atlantic coast to the Missouri valley the departures are from normal to 0.08 above.

BAROMETRIC RANGES.

The monthly barometric ranges have been greatest in New England, the upper lake region and the extreme northwest; they have been least in New Mexico, Arizona, and southern California.

The following are the greatest monthly ranges reported: Eastport, Maine, 1.65; Newport, Rhode Island, 1.59; Block Island, Rhode Island, 1.58; Portland, Maine, 1.56; Duluth, Minnesota, 1.55; Provincetown, Massachusetts, 1.54; Saint Vincent, Minnesota, 1.53; New London, Connecticut, 1.48; Marquette, Michigan, 1.46; Escanaba, Michigan, 1.38; Mackinaw City, Michigan, and Delaware Breakwater, Delaware, 1.36; Moorhead, Minnesota, 1.35; New Haven, Connecticut, Barnegat City, New Jersey, and Huron Dakota, 1.34; Yankton, Dakota, 1.32; Albany, New York, 1.30. The smallest monthly ranges are: San Diego, California, 0.28; Los Angelos, California, 0.33; Tucson, Arizona, 0.36; Yuma, Arizona, 0.40; Fort Grant, Arizona, 0.41; Visalia, California, 0.44; Prescott, Arizona, 0.45; Silver City, New Mexico, 0.49; Camp Thomas and Fort Apache, Arizona, 0.52; El Paso, Texas, and Red Bluff, California, 0.56; Eagle Rock, Idaho, 0.59.

In the several districts the monthly ranges have varied as follows:

New England.—From 0.94 on the summit of Mount Washington, New Hampshire, to 1.65 at Eastport, Maine.

Middle Atlantic States.—From 1.00 at Lynchburg, Virginia, to 1.36 at Delaware Breakwater, Delaware.

South Atlantic States.—From 0.79 at Atlanta, Georgia, to 1.10 at Kittyhawk, North Carolina.

Florida peninsula.—From 0.55 at Key West, to 0.81 at Cedar Keys.

Eastern gulf.—From 0.81 at Starkville, Mississippi, to 0.91 at New Orleans, Louisiana.

Western gulf.—From 0.75 at San Antonio, Texas, to 0.98 at Denison, Texas, and Port Eads, Louisiana.

Rio Grande valley.—From0. 78 at Brownsville, Texas, to 0.79 at Eagle Pass, Teqas.

Ohio valley and Tennessee.—From 0.81 at Knoxville, Tennessee, to 1.13 at Morgantown, West Virginia.

Lower lakes.—From 1.06 at Toledo, Ohio, to 1.23 at Oswego and Rochester, New York.

Upper lakes.—From 1.05 at Chicago, Illinois, to 1.55 at Duluth, Minnesota.

Extreme northwest.—From 1.21 at Fort Buford, Dakota, to 1.53 at Saint Vincent, Minnesota.

Upper Mississippi valley.—From 1.01 at Cairo, Illinois, to 1.26 at Saint Paul, Minnesota.

Missouri valley.—From 1.18 at Leavenworth, Kansas, to 1.34 at Huron, Dakota.

Northern slope.—From 0.89 at Fort Maginnis, Montana, to 1.17 at Fort Keogh and Poplar River, Montana.

Middle slope.—From 0.65 on the summit of Pike's Peak, Colorado, to 0.98 at West Las Animas, Colorado.

Southern slope.—From 0.62 at Fort Davis, Texas, to 0.87 at Henrietta, Texas.

Southern plateau.—From 0.36 at Tucson, Arizona, to 0.70 at Santa Fé, New Mexico.

Middle plateau.—From 0.65 at Pioche, Nevada, to 0.70 at Salt Lake City, Utah.

Northern plateau.—From 0.59 at Eagle Rock, Idaho, to 0.98 at Lewiston, Idaho.

North Pacific coast.—From 0.99 at Roseburg, Oregon, to 1.09 at Olympia, Washington Territory.

Middle Pacific coast.—From 0.56 at Red Bluff, California, to 0.83 at Cape Mendocino, California.

South Pacific coast.—From 0.28 at San Diego, California, to 0.44 at Visalia, California.

AREAS OF HIGH BAROMETER.

Five areas of high barometer have been sufficiently marked to merit description.

I.—On the 1st, the pressure was high in the territories of the northwestern frontier, the isobar of 30.4 extending from Dakota on the east to Washington Territory on the west and New Mexico on the south. On the 2d, the following remarkably high pressures were observed: Yankton, Huron and Fort Bennett, 30.8, or above the normal respectively 0.63, 0.68, and 0.67 inch. The isobar of 30.7 included all of Nebraska and portions of Dakota, Wyoming, Colorado, Kansas, and Iowa. On the 3d, the pressure in the United States east of the Sierra Nevada mountains averaged from 0.3 to 0.4 inch above the mean for the month, the region of highest barometer extending from Manitoba to the east Gulf states; but at the last observation of the day there were two distinct centres of high area, one in the southwest included in the isobar of 30.4, and the other in Manitoba included in the isobar of 30.5. On the 4th, the high area in the southwest ceased to exist as an important meteorological element, but at the morning observation in Manitoba, pressures exceeding 30.7 inches were reported; during the day the centre of high area was rapidly transferred to the lower lake region. On the 5th, the high barometer extended over the middle states and New England. On the 6th, it was central in the Maritime Provinces of Canada and Nova Scotia, where pressures from 0.6 to 0.7 inch above the mean for the month were observed. Although the barometers at the centre of this high area were in general the highest observed during the month, the temperatures reported were not as low as might have been anticipated.

II. At the midnight observation of the 5th there was a remarkable increase of pressure in Idaho and Montana. On the 6th, the centre of high area, enclosed in the isobar of 30.6, moved in an easterly track into Manitoba. On the 7th, its centre was transferred to southern Michigan. On the 8th, the high area, rapidly diminishing in pressure at its centre, moved over the middle states. In connection with this high area, a cold wave or "norther" was noted on the 6th in Montana and Dakota, extending during the day over the Missouri valley, Nebraska and Colorado. On the 7th, the "norther" moved over the Gulf states; the temperature at several stations falling more than 30° in twenty-four hours. Cautionary off-shore signals, displayed on the coast of Texas for a "norther," were justified by the following maximum velocities: Indianola, 54, n., Galveston, 43 ne. The minimum temperatures for the month were generally associated with this high-pressure in the northwest, lake region, middle states, and New England.

III. On the 8th, there was a sharp rise of pressure in Washington Territory, which, on the 9th, extended over Idaho and Montana. On the 10th, the pressure was highest in the upper Missouri valley. On the 11th, the high area began to move in a southerly track and became central in Kansas and Missouri. On the 12th, the high barometer was transferred to the south Atlantic and Gulf states, and, on the 13th, ceased to exist as a high area.

IV. For the twenty-four hours following the 3 p. m. observation of the 17th there was a very remarkable rise of pressure in the northwest and upper lake region in the rear of low area vi., the rise at Duluth being 1.17 inches. In Manitoba the temperature fell to nearly 30° below zero and at exposed points Minnesota to 20° below zero; in Minnesota and Dakota at some of the signal stations the temperature fell in twenty-four hours from fifty to sixty degrees. During the 18th, the high-pressure became central in Minnesota. On the 19th, the high area was transferred to Texas. This high-pressure produced a "norther" on the coast of Texas, but very low temperatures were not observed in that state, although the minimum temperatures of the month in the region extending from Wyoming and Nebraska to the Gulf of Mexico are associated with this high barometer.

V. On the 24th, there was a sharp rise in pressure exceeding 0.5 inch in the northern portion of Dakota and Montana. On the 25th, the high area moved into Manitoba and Minnesota. On the 26th, 27th, and 28th, its centre remained nearly stationary, but the high barometer, yielding in pressure in advance of a depression on the Pacific coast, ceased to exist as an important weather element.

AREAS OF LOW BAROMETER.

Eleven areas of low barometer have been charted for the month of March, none of which originated west of the Rocky mountains. Numbers i., iii., v., vi. and viii., first appeared in British America, north of Minnesota and Dakota, and with the exception of number viii., they pursued a general easterly movement. Numbers i., v. and vi. passed eastward over Canada, and the centres were at no time located within the limits of the United States. Number ii. appeared in the extreme northwest, moved eastward, and in New England united with number iv., which first appeared on the south Atlantic coast. Numbers vii., x. and xi. first originated in the southwest, and pursued northeasterly courses, disappearing off the Atlantic coast.

To show the number of areas of low-pressure which have occurred during the month of March since 1874, the following table has been prepared:

Month.	Year.	Number.	Month.	Year.	Number.
March	1874	12	March	1879	18
Do	1875	11	Do	1880	16
Do	1876	8	Do	1881	10
Do	1877	12	Do	1882	10
Do	1878	17	Do	1883	11

The following table shows the latitude and longitude in which each depression was first and last observed, and the hourly velocity of each depression within the limits of the stations of observation:

Areas of low barometer.	First Observed.		Last Observed.		Average velocity in miles per hour.
	Lat. N.	Long. W.	Lat. N.	Long. W.	
	° ′	° ′	° ′	° ′	
No. I.	49 00	95 00	49 00	62 00	54.7
II.	47 15	101 00	46 30	62 00	36.8
III.	50 30	100 30	50 00	61 00	33.4
IV.	33 00	78 30	50 00	61 00	40.0
V.	50 30	94 30	48 15	60 00	30.4
VI.	50 45	98 15	50 45	58 15	45.5
VII.	35 00	93 00	46 45	60 00	25.3
VIII.	50 15	96 45	38 00	78 30	33.2
IX.	30 30	84 30	35 30	74 30	22.1
X.	32 30	101 00	37 30	75 15	48.1
XI.	29 45	101 30	34 45	80 30	48.4
Mean hourly velocity.....					38.0

I.—At the morning observation of the 1st a depression of slight energy was noted in Manitoba; during the day it moved over the lake region, but was not accompanied by precipitation. Brisk to high winds were reported from several of the lake ports. On the 2d, the centre of depression moved along the Saint Lawrence valley and beyond the coast. In connection with this low-area the maximum temperatures of the month occurred at Milwaukee, Erie and Buffalo, and at the most northerly stations in the upper lake region.

II.—On the 5th, a depression, developing in Dakota, moved into Minnesota. On the 6th, the low area, exhibiting a great increase in storm energy, pursued an easterly track over the lake region, and rain or snow was reported from all the states east of the Mississippi. On the 7th, the storm-centre moved over New England and beyond the limits of the land stations. Cautionary signals displayed for this storm were justified by maximum velocities, as follows: Grand Haven, 40 nw.; Milwaukee, 31 nw.; Hatteras, 44 sw.; Kittyhawk, 39 se.; Cape Henry, 28 sw.; Chincoteague, 42 n.; Delaware Breakwater, 36 sw.; Cape May, 28 sw.; New York, 29 w.; New London 26 se.; Block Island, 40 n.; Newport, 37 nw.; Provincetown, 40 se.; Boston, 26 e.; Thatcher's Island, 28 se.; Portland, Maine, 30 se.; Eastport, 42 e. Cautionary signals were changed on the middle Atlantic coast to cautionary off-shore signals, and the following maximum velocities were reported: Chincoteague, 42 n.; Delaware Breakwater, 40 nw.; Cape May, 48 nw.; Atlantic City, 32 nw.; Barnegat, 44 nw., and Sandy Hook, 44 nw.

III.—At the midnight observation of the 8th a depression, which had been moving in a southeasterly track down the Saskatchewan valley became central in Manitoba. On the 9th, it continued its course over the Lake Superior region, and during the day exhibited a considerable development of energy. On the 10th, it became merged in low area iv., which was moving in a northeasterly path along the coast. Cautionary signals displayed for this storm on Lake Michigan were justified by the following maximum velocities: Grand Haven, 32 s.; Milwaukee, 32 n. The storm effects of this depression, after it had passed the lake region will be considered in connection with low area iv.

IV.—At the midnight report of the 9th, the pressure on the North Carolina coast had fallen in eight hours 0.4 of an inch, with a shift of winds indicating the approach of a storm from the sea. On the 10th, the storm-centre, with a great development of energy, moved along the line of the coast, becoming at midnight merged into low area iii., as has been stated. The following very low-pressures were reported during the progress of the storm: Eastport and Block Island, 28.92 inches; Provincetown, 28.95, or nearly one inch below the normal. Very heavy rain or snow accompanied this depression. On the 11th, the storm-centre, showing considerable diminution in violence, moved beyond the Gulf of Saint Lawrence. Cautionary signals displayed for this storm were justified as follows: Smithville, 28 se.; Wilmington, 25 s.; Macon, 28 sw.; Hatteras, 48 sw.; Kittyhawk, 36 nw.; Cape Henry, 32 e.; Chincoteague, 29 nw.; Delaware Breakwater, 44 e.; Cape May 39 ne.; Atlantic City, 32 ne.; Barnegat City, 44 w.; Sandy Hook, 40 ne.; New York, 32 ne.; New Haven, 38 ne.; New London, 26 nw.; Block Island, 55 ne.; Newport, 36 sw.; Provincetown, 32 se.; Boston, 36 ne.; Thatcher's Island, 44 ne.; Portland, Maine, 32 ne.; Eastport, 42 e. Cautionary signals were changed to off-shore from Cape Cod to Macon, North Carolina, and were generally justified. The highest off-shore velocity was at Cape May, 56 w.

V.—On the 13th, a slight depression moved over Manitoba into the lake Superior region. On the 14th, it contained its easterly track north of the lake region and showed a considerable development of storm energy, especially in its south and west quadrants. On the 15th, the low area pursued its easterly course beyond the Maritime Provinces of Canada. The pressures this day in the centre of the low area were generally 0.7 of an inch below the mean for the month. The precipitation accompanying this storm was not abundant, and generally occurred after the veering of the winds to northwest. Cautionary northwest signals were displayed on Lake Michigan, and the following high winds were reported: Milwaukee, 36, nw; Grand Haven, 29, nw. Cautionary off-shore signals displayed on the Atlantic coasts for this storm were justified by the following maximum velocities: Portland, Maine, 28, w.; Thatcher's Island, 37, nw.; Newport, 28, nw.; Block Island, 37, n.; New London, 25, nw.; Sandy Hook, 44, nw.; Cape May, 42, nw.; Delaware Breakwater, 47, nw.; Chincoteague, 45, nw.; Cape Henry, 52, nw.; Kittyhawk, 60, n.; Hatteras, 52, n.

VI.—On the 17th, a storm-centre exhibiting considerable energy moved in an easterly track north of the lake region. The lowest pressure reported was at Duluth, 29.08, or 1.03 below the normal. On the 18th, with diminished energy, the depression was transferred beyond the mouth of the Saint Lawrence. The precipitation accompanying this storm was not heavy, and generally occurred, as in the previous storm, after the shift of the winds to the northwest. Cautionary signals displayed for this storm were justified by maximum velocities, as follows: Grand Haven, 31, n.; Milwaukee, 43, ne.; Eastport, 36, s.; Portland, 26. s.; Thatcher's Island, 28, sw.; Boston, 30, e.; Provincetown, 28, s.; Newport, 25, se; Block Island, 33, sw.; New York, 25, sw.; Sandy Hook, 42, sw.; Barnegat, 46, nw.; Chincoteague, 30, s.; Delaware Breakwater, 45, s.; Cape May, 32, s.; Atlantic City, 32, s.

VII.—This appears to have been a secondary development of the low area just described. The pressure being below the mean for the month in the southern states after the passage of low area vi., there was formed by the high pressure on the south Atlantic coast and the rising pressure in the northwest and lake region, a long barometric depression extending from Texas to Maine, but at the last observation of the 18th, a well-defined centre of low area was located in Arkansas. On the 19th, the storm-centre increasing in energy moved into the middle states, and on the 20th and 21st, pursued its track along the coast of New England and Nova Scotia. General precipitation accompanied this depression in all the states east of the Mississippi river. The cautionary signals displayed for low area number vi., were continued for this storm, and the maximum velocities have been previously stated in the description of that depression. The maximum temperatures of the month from the Indian Territory and northern Texas northeastward to the lower lake region and southern New England, occurred in connection with this low area.

VIII.—On the 22d, a depression moved from Manitoba in a track slightly to the south of east over the Lake Superior region. On the 23d, it travelled to the southeast, becoming central at the afternoon report in Virginia. No dangerous winds were reported, and it is only remarkable for the somewhat anomalous track of the centre of this low area.

IX.—On the 24th, the pressure was quite low in the Gulf states and the Gulf of Mexico, but not until the afternoon of the 25th was a well defined centre of depression noted. The storm had then taken a northeasterly track and, exhibiting a constantly increasing development in energy, moved along the south Atlantic coast. Cautionary signals displayed for this

storm were justified, as follows: Savannah, 28, e.; Smithville, 28, ne.; Wilmington, 25, e.; Macon, 44 ne.; Hatteras, 60, ne.; Kittyhawk, 56, ne.; Cape Henry, 36 nw.; Chincoteague, 28 ne.; Cape May, 32 nw.; Barnegat, 26 ne.

X.—On the 27th and 28th, the pressure remained low in Texas. On the 29th, the low area moved, with only a slight increase in energy, into western Tennessee. On the 30th, it was transferred in an easterly track beyond the coast, and at no point of its path did it manifest any storm violence. In connection with this low area the maximum temperatures of the month occurred at stations in southern and eastern Texas, Mississippi, Tennessee and North Carolina.

XI.—This was a secondary development of the depression just described as x., and the track of the centre of the storm-area is charted slightly to the south of x. This depression was accompanied by quite heavy rains and by general thunder-storms. It exhibited decided storm energy only on the North Carolina coast, where cautionary signals were displayed and justified by the following maximum velocities: Hatteras, 40 ne.; Kittyhawk, 48 ne.; Cape Henry, 38 ne. The maximum temperature of the month along the Gulf and south Atlantic coasts are associated with this low area.

NORTH ATLANTIC STORMS DURING MARCH, 1883.

[*Pressure expressed in inches and in millimeters; wind-force by scale of* 0—10.]

Chart ii. exhibits the tracks of the principal depressions that have moved over the north Atlantic ocean during March, 1883. The location of the various storm-centres has been approximately determined from reports of observations furnished by agents and captains of ocean steamships and sailing vessels in the north Atlantic, and from other miscellaneous data received at this office up to April 21st. The observations used are, in general, simultaneous, being taken each day at 7 h. 0 m. a. m., Washington, or 0 h. 8 m. p. m., Greenwich mean time.

Seven depressions are charted, but only three of these, namely, iv., v. and vi., appear to have reached the European coasts. Number v. apparently separated when near the twenty-second meridian, one part moving northeastward and the other taking an east-southeasterly direction toward the Bay of Biscay. Number vii., after leaving the coast of the United States, appears to have pursued a course somewhat south of the usual track. The eastward movement of the depressions numbered i., ii. and iii. was checked by the presence of an area of barometric maxima which prevailed over the ocean during the first half of the month and extended from Europe westward to the forty-fifth meridian, the depressions apparently filling up near the edge of the high area. None of the depressions charted have displayed unusual storm-energy; on the contrary, the weather has been much less stormy than is usual during the month of March. In consequence of the area of high-pressures above referred to, easterly and southeasterly winds prevailed during the greater part of the month, and were consequently favorable to vessels bound to the westward.

The following desciptions relate to the storms traced on the chart:—

I.—At the close of February a slight depression occupied the Atlantic near N. 45°, and between W. 40° and 50°. By March 1st, the pressure had decreased and the disturbance exhibited considerable energy as indicated by the following report of Captain Berry, of the s. s. "Periére." At 5 a. m., the barometer began to fall rapidly and at 9 a. m. (in N. 43° 30′, W. 47° 09′), the wind hauled to se. and freshened; at 3 p. m. the wind blew in squalls; 4:45 p. m. the storm was at its height, with furious sea running. From 5:30 p. m. to 6 p. m., in the vicinity of the centre, thunder, lightning, hail and higher temperature, with thunder squalls from the nw. and wind from the sw. At the centre, the barometer, after having risen quickly about .15 of an inch, again fell correspondingly and the wind shifted from w. to sw., with very heavy sea from the southward; at 9 p. m. the wind gradually hauled to nw., the barometer began to rise and the gale moderated. The lowest barometric reading during the storm was 29.21, (742.0)." By the 2d, the centre of disturbance had moved northeastward to about N. 51°, W. 37°; on that day the ship "Festina Lente," in N. 52 16′, W. 35 0′, reported barometer 29.35 (745.5(, wind s. by w., force 10; vessels to the southward of N. 50°, experienced strong westerly gales with snow, while vessels to the east of the centre had moderate southerly gales. By the morning of the 3rd, the disturbance had moved beyond the range of the observations and a great increase of pressure set in over the ocean south of the fiftieth parallel and between W. 30° and 45°, where clearing weather with moderate breezes generally prevailed.

II.—This is probably a continuation of low area i. of chart i. of this REVIEW. On the 2d, the disturbance passed on to the Atlantic from the coast of Nova Scotia, and during the 3d and 4th, the circulation of the winds near the fiftieth meridian, indicated that the centre of disturbance was to the westward of that meridian. On these dates, moderate to strong southerly gales prevailed to the eastward of the storm-centre, while to the westward moderate breezes were reported. By the morning of the 5th, the disturbance had passed to about N. 45°, W. 45°, the barometric pressure near the centre, ranging from 2.69 (751.8) to 29.8 (756.9). An area of high-pressures was situated near W. 40° and extended eastward to the British Isles, in consequence, high easterly and southeasterly winds prevailed near the forty-fifth meridian; the gradients had also increased in the western quadrants, where the northwesterly winds increased in force. Captain Meyer, of the bark "Orpheus," reported as follows: "5th, near N. 45° 33′, W. 43° 12′, barometer 29.65 (753.1), fresh sse. gale with high cross sea; at 4 p. m. the wind gradually increased until midnight when it blew a whole gale with heavy rain. At 4.30 p. m. of the 5th, the wind shifted to south and southwest and continued to blow with undiminished force." On the 4th, 5th and 6th, the s.s. "Republic," between N. 42° 18′, W. 52° 03′ and N. 45° 00′ W. 40° 00′, had strong ssw. to ne. and sse. gales, with black and rainy weather, lowest barometer 29.5 (749.3). The s. s. "Lord Gough" in N. 45° 30′ W. 41° 25′, also reported: 12.30 p. m., heavy rain, wind shifting from se. to sw., force 8, barometer 29.58 (751.3). At midnight of the 6th, the winds changed to northwesterly and by morning of the 7th, the depression had entirely disappeared, and the area of high-pressures had advanced westward to the sixtieth meridian.

III.—This is a continuation of low area ii. of chart i. The disturbance passed over the Maritime Provinces to the Atlantic during the 7th, and, on the 8th, it was apparently central near N. 42, W. 52°. On the 7th, the s.s. "Weser," in N. 39° 14′, W. 62° 13′, reported a heavy sw. by s. gale with long cross sea, lowest barometric reading 29.49 (749.0) at 8 p. m.; on the 8th the s.s. "Lord Gough," reported a sudden shift of wind from s. to nw., force 8, barometer 29.65 (753.1). On the 9th the centre of disturbance, moving northeastward, was shown near N. 45°, W. 38°, the pressure having increased while the barometric gradients had decreased in the eastern quadrants, so that only moderate to fresh breezes were generally reported by vessels within the area of disturbance. By the morning of the 10th a considerable increase of pressure appears to have set in over the ocean between W. 40° and W. 50°, and the northwesterly winds increased to moderate gales. This depression disappeared during the day near W. 37°.

IV.—This was probably a secondary development of low areas iii. and iv. of chart i., which are described elsewhere in this REVIEW. During the passage of low area iv. along the coast of the United States, strong southerly gales were reported on the 10th by vessels to the westward of the sixteenth meridian and between N. 30° and N. 40°. On the 11th, the pressure decreased near the Banks of Newfoundland, and, on the 12th, the shifting of the winds indicated that the disturbance was near the eastern edge of the Banks. On that day the winds were moderate to fresh and continued so, during the 13th, as the depression moved northeastward, and the pressure increased but slowly in rear of the disturbance. During the 14th, 15th, and 16th the barometer remained low over the ocean between the forty-fifth and fifty-fifth parallels of latitude and the thirty-